REMARKS

REJECTIONS UNDER 35 U.S.C. § 101

Claims 29-43 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Independent claims 29, 34, and 39 have been amended to recite statutory subject matter. Claims 30-33 depend from claim 29. Claims 35-38 depend from claim 34. Claims 40-43 depend from claim 39. Given that dependent claims necessarily include the limitations of the claims from which they depend, Applicant submits that claims 30-33, 35-38, and 40-43 also recite statutory subject matter. Thus, Applicant respectfully submits that claims 29-43 recite statutory subject matter and meet the requirements of 35 U.S.C. § 101.

REJECTIONS UNDER 35 U.S.C. § 103

Claims 29-32, 34-37, and 39-42 were rejected under 35 U.S.C. §103(a) as being unpatentable over Thuyen Le et al., "A new flexible architecture for variable length DC targeting shape-adaptive transform" (*Thuyen Le*) in view of U.S. Patent No. 6,687,724 issued to Mogi et al. (*Mogi*). Applicant submits that claims 29-32, 34-37, and 39-42 are not rendered obvious by *Thuyen Le* in view of *Mogi* for at least the reasons described below.

Claim 29 recites, in part, the following:

> forming a matrix [A] of predetermined values and multiplication operations;
> **factoring [A] into a butterfly matrix [B], a shuffle matrix [S], and a multiplication matrix [M]**, wherein the multiplication operations are selectively positioned into pairs within [M];

Thus, Applicant claims factoring [A] into a butterfly matrix [B], a shuffle matrix [S], and a multiplication matrix [M]. Claims 34 and 39 recite similar limitations.

The Office action cites *Thuyen Le* as disclosing factoring matrix [A] into a butterfly matrix [B], a shuffle matrix [S], and a multiplication matrix [M]. Specifically, the Office action

states that matrix F of equation 3 (p. 1950) is a butterfly matrix. Applicant respectfully disagrees with the Office action's characterization of matrix F in *Thuyen Le*. One skilled in the art at the time of this invention would understand a butterfly matrix to be an *n*-by-*n* matrix including the basic form: $\begin{bmatrix} 1 & 1 \\ 1 & -1 \end{bmatrix}$. The butterfly matrix at the top of page 22 of the present application is one example of a butterfly matrix. The matrix F of equation 3 in *Thuyen Le* is not an example of a butterfly matrix. Given that *Thuyen Le* does not teach or disclose a butterfly matrix, *Thuyen Le* cannot teach or disclose factoring matrix [A] into a butterfly matrix [B], a shuffle matrix [S], and a multiplication matrix [M], as recited in claim 29.

Mogi was cited as disclosing Packed Multiply and Add instructions. Whether or not *Mogi* teaches the limitations cited in the Office action, *Mogi* does not teach or disclose factoring matrix [A] into a butterfly matrix [B], a shuffle matrix [S], and a multiplication matrix [M] as claimed in claimed 29. Thus, *Mogi* fails to cure the deficiencies of *Thuyen Le*. Therefore, Applicant respectfully submits that claims 29, 34 and 39 are not obvious in view of *Thuyen Le* and further in view of *Mogi*.

Claims 30-32 depend from claim 29. Claims 35-37 depend from claim 34. Claims 40-43 depend from claim 39. Given that depend claims necessarily include the limitations of the claims from which they depend, Applicant respectfully submits claims 30-32, 35-37, and 40-43 are not obvious in view of *Thuyen Le* and *Mogi*.

CONCLUSION

For at least the foregoing reasons, Applicants submit that the rejections have been overcome. Therefore, claims 29-43 are in condition for allowance and such action is earnestly solicited. The Examiner is respectfully requested to contact the undersigned by telephone if such
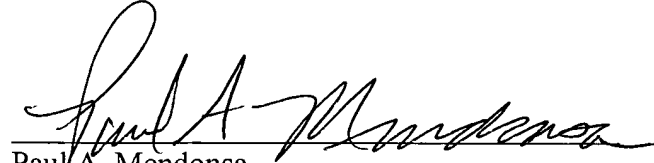
contact would further the examination of the present application. Applicants have included a copy of all claims in the attached index for the Examiner's convenience.

Please charge any shortages and credit any overcharges to our Deposit Account number 02-2666.

Respectfully submitted,
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